

Att'y Ref. No. 003-072

U.S. App. No.: 10/629,605

IN THE CLAIMS:

Kindly rewrite Claims 1-23 as follows.

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1. (Currently Amended) A premix burner, suitable for forming at least one stable flame front in a combustion chamber, for use with means for supplying fuel and air to said premix burner, and with means for mixing fuel and air to form a fuel/air mixture for subsequent combustion in the combustion chamber, said burner comprising:
 - a premix burner casing, having an upstream end and a downstream end defining a flow direction, said burner casing comprising a tube which is open at an upstream end, has a transition contour, and is in fluid communication with the combustion chamber at a tube downstream end via the transition contour, for flowing air therethrough;
 - a burner lance comprising an inner tube having an outer wall and projecting into the interior of the premix burner casing on the premix burner casing upstream end to form an annular flow duct with the burner casing, the burner lance having:
 - an upstream end, a downstream end, and an inner tube wall forming an inner flow passage enclosed by said inner tube wall;
 - at least one first fuel supply unit on the inner tube wall to supply fuel into the inner flow passage; and
 - at least one second fuel supply unit on the outer wall of the burner lance to supply fuel into the annular flow duct.
2. (Previously Presented) The premix burner as claimed in claim 1, wherein the inner tube is open at the upstream and downstream ends.
3. (Previously Presented) The premix burner as claimed in claim 1, wherein the transition contour has an axial length, and the downstream end of the inner tube is located within the axial length of the transition contour.
4. (Previously Presented) The premix burner as claimed in claim 1, wherein the transition contour is convergent-divergent in the flow direction, comprising, in a first

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section, narrowing the clear cross section of the premix burner casing and then widening the clear cross section towards the downstream end.

5. (Previously Presented) The premix burner as claimed in claim 1, wherein the burner lance is configured and arranged to be fitted into the premix burner casing in a modular manner.
6. (Previously Presented) The premix burner as claimed in claim 1, further comprising:
a swirler on the outer wall of the inner tube for introducing a swirl motion into a flow through the annular duct.
7. (Previously Presented) The premix burner as claimed in claim 1, further comprising:
a swirler on the inner wall of the inner tube for introducing a swirl motion into a flow through the inner flow passage.
8. (Previously Presented) The premix burner as claimed in claim 1, wherein the fuel supply units are configured and arranged for feeding either gaseous fuel or liquid fuel into both the inner flow passage and the annular flow duct.
9. (Previously Presented) The premix burner as claimed in claim 1, wherein at least one second fuel supply unit is adapted to supply gaseous fuel to the annular flow passage, and further comprising at least one further fuel supply unit adapted to supply liquid fuel to the annular flow passage and positioned on the inner tube downstream of the second fuel supply unit.
10. (Original) The premix burner as claimed in claim 1, wherein at least one fuel supply

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unit is provided on the downstream side of the inner tube, said fuel supply unit being arranged and adapted to supply liquid fuel into a mixing zone which is defined by the transition contour.

11. (Previously Presented) The premix burner as claimed in claim 1, wherein at least two fuel supply units are arranged axially offset to one another, and are configured and arranged to supply fuel to one space selected from the group consisting of the annular flow duct and the inner flow passage.
12. (Previously Presented) The premix burner as claimed in Claim 1, wherein the inner tube wall is formed such that the inner flow passage has an essentially constant flow cross section along the axial extent of the burner lance.
13. (Previously Presented) The premix burner as claimed in claim 12, further comprising:
 - a fuel supply unit for feeding gaseous fuel into the inner flow passage and operable as a pilot gas supply arranged on the downstream end of the burner lance.
14. (Previously Presented) The premix burner as claimed in claim 12, further comprising:
 - a fuel supply unit for feeding gaseous fuel into the inner flow passage and operable as a premix gas supply arranged upstream of the downstream end of the burner lance.
15. (Previously Presented) The premix burner as claimed in claim 1, wherein the inner wall of the inner tube is contoured such that the inner flow passage has an essentially constant flow cross section, with a divergent downstream end section, and further comprising a swirl generator in the inner flow passage upstream of the divergent section.

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16. (Previously Presented) The premix burner as claimed in claim 15, further comprising:
at least one fuel supply means for feeding gaseous fuel into the inner flow passage and positioned immediately upstream of the divergent section on the inner tube wall, the at least one fuel-addition unit capable of causing a first flame front to stabilize within the divergent section of the inner flow channel, and a second flame front to stabilize downstream of the inner tube.
17. (Previously Presented) The premix burner as claimed in claim 1, wherein an element selected from the group consisting of the casing inner contour, the inner tube outer contour, the inner tube inner contour, and combinations thereof, being configured and arranged to provide a divergent-convergent venturi flow cross section of the inner flow passage, the annular flow duct, or both, at the location of a fuel supply unit.
18. (Previously Presented) A method for firing a combustion chamber for driving a gas turbine using the modular premix burner as claimed in claim 1, comprising the steps of: generating a premixed air/fuel mixture vortex flow in the annular passage, said vortex flow forming a stable premixed flame front within the combustion chamber after having passed the transition contour;
supplying gaseous fuel into the inner flow passage essentially at the downstream end of the burner lance;
using said gaseous fuel as pilot gas; and
burning said pilot gas in a diffusion flame.
19. (Previously Presented) A method for firing a combustion chamber for driving a gas turbine using the modular premix burner as claimed in claim 1, comprising the steps of: generating a premixed air/fuel mixture vortex flow in the annular passage, said vortex

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flow forming a stable premixed flame front within the combustion chamber after having passed the transition contour;
providing a divergent end section of the inner flow channel at the downstream end of the burner lance;
supplying gaseous fuel into the inner flow passage essentially at the downstream end of the burner lance such that an additional flame front is formed axially upstream of the premixed flame front.

20. (Previously Presented) The premix burner as claimed in claim 2, further comprising means for flowing air through the inner tube.
21. (Previously Presented) A method for firing a combustion chamber for driving a gas turbine using the modular premix burner as claimed in claim 1, comprising the steps of:
generating a premixed air/fuel mixture vortex flow in the annular passage, said vortex flow forming a stable premixed flame front within the combustion chamber after having passed the transition contour;
supplying gaseous fuel into the inner flow passage essentially upstream of the downstream end of the burner lance;
using said gaseous fuel as premix gas; and
mixing said premix gas with air flowing through the inner flow passage.
22. (Previously Presented) A method of using the premix burner as claimed in claim 1 as a modular premix burner comprising:
providing the premix burner casing as a standard module;
providing a plurality of different burner lances, said plurality of different burner lances comprising different fuel supply units, swirl generators, or both; and
modularly integrating at least one burner lance into the premix burner casing.

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23. (Previously Presented) The premix burner as claimed in Claim 1, further comprising:
means for supplying fuel and air to said premix burner; and
means for mixing fuel and air to form a fuel/air mixture for subsequent combustion in the combustion chamber.